

### REMARKS

Favorable reconsideration of this application is respectfully requested.

Claims 1-5, 13, 14, and 17-28 are pending in this application. Claims 6 and 8-12 are canceled without prejudice and new claims 23-28 are added for examination. Applicants submit no new matter is added. New claims 23-28 are supported by the original specification at, for example, page 10, lines 10-15.

Claims 1, 2, 14, and 18-22 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. patent 3,734,348 to White in view of U.S. patent 6,739,578 to Barton et al. (herein "Barton"). That claim rejection is traversed by the present response as discussed next.

Each of independent claims 1, 17, and 19 is amended by the present response to clarify features recited therein. Specifically, independent claim 1 no longer refers to a "pressure unit" housed in the second chamber, but now instead recites a --spring-- housed in the second chamber. That claimed subject matter is supported by the original specification for example at page 9, lines 11-13. As noted in that portion in the specification, and with reference to Figures 1A and 1B in the present specification as a non-limiting example, the pressure unit 15 includes a device such as a coil spring that has a repulsive force to force a partition downward by the repulsive force. The use of a spring to discharge liquid out of an outlet port is now clarified in each of independent claims 1, 17, and 19, and is believed to clearly distinguish over the applied art.

The previous grounds for rejection relied upon White to disclose a fixable pressure unit 70. In that respect White notes element 70 as a "55-Nitinol" bellows which can "deform . . . in a *plastic sense, and not in an elastic sense*, to the position necessary to permit the filling, i.e., the loading, of the storage tank with liquid propellant".<sup>1</sup>

---

<sup>1</sup> White at column 4, lines 36-40 (emphasis added).

In reply to citing the bellows 70 to correspond to the previously recited “pressure unit”, applicants respectfully submit the bellows 70 is not a “spring” as now recited in the claims. The ordinary meaning of the term “spring” is “an elastic, stressed, stored-energy machine element that, when released, will recover its basic form or position”, as noted in the McGraw-Hill Dictionary of Scientific and Technical Terms, 5th Edition, as one example. Applicants submit one of ordinary skill in the art would understand the term “spring” does not correspond with an energizer that employs plastic deformation and/or external energy for driving.

In contrast to the claimed “spring” the above-noted passage in White makes it clear that the bellows 70 is not a “spring” as White clearly indicates the bellows 70 being “deformed . . . in a plastic sense”.

White also discloses the deformed bellows 70 being subjected to a temperature above a transition temperature,<sup>2</sup> and then the bellows 70 being given a driving force by shape recovery phenomena to expel liquid propellant stored in the liquid container.<sup>3</sup>

Thereby, from the above-noted disclosures in White applicants submit it is clear to one of ordinary skill in the art that in White the bellows 70 employs plastic deformation given in advance and external heat to generate a driving source.

In contrast to the disclosure in White, in the claims as currently amended a spring, such as a coil spring, provides a force to press a partition member so as to discharge liquid fuel out of the outlet port. White is not directed to such features.

Moreover, no teachings in Barton are believed to cure the above-noted deficiencies in White. In that respect applicants note Barton was not cited with respect to the claimed “pressure unit” now clarified as a --spring--. Applicants also note in Barton a compressed

---

<sup>2</sup> White at column 5, lines 24-26.

<sup>3</sup> White at column 4, line 34 et seq. and column 2, line 47 et seq.

fluid automatically flows out of a container 8 when a valve is opened, and thereby Barton also fails to disclose or suggest a “spring pressing the partition member so as to discharge the liquid fuel out of the fuel port”.

Applicants also note that as clearly understood from the above-noted comments, the device of White requires a shape-memory metal device that is plastically deformed and a temperature change to expel a liquid propellant. Barton’s device requires compressed fluid. In contrast to both Barton and White, the claimed subject matter does not require such elements to function to discharge liquid, i.e., the claims as written do not require the elements as in White and Barton, but still retain a function of discharging a liquid fuel. An omission of an element and retention of its function is an indicia of unobviousness, In re Edge, 359 F.2d 896, 149 USPQ 556 (CCPA 1966).

Moreover, applicants submit one of ordinary skill in the art would not have further modified White in view of Barton to meet the claim limitations, that is, and to utilize a spring as in the claimed invention. Applicants submit a general knowledge of one skilled in the art includes a fact that a liquid fuel contains energy in various forms such as compression (most of fuels are subject to compression for the purpose of liquidizing the fuel) and chemical energy. In light of such general knowledge, one skilled in the art would generally look to an energy source for a driving source for discharging the liquid fuel from the various forms of energy. In that respect White considers utilizing heat that results from use of the fuel and Barton considers utilizing compression of the fuel as energy. In the case of a fuel cell to which the present invention is directed, one skilled in the art would likely consider employing electricity generated from the liquid fuel to drive a pump for supplying the fuel to the fuel cell.

The applicants of the present invention have taken a contrary approach and applicants submit one of ordinary skill in the art would not have had motivation to add a spring to

discharge liquid fuel as in the claims as written. In that respect applicants respectfully submit that there is no suggestion or motivation in the references themselves or in knowledge generally available to one of ordinary skill in the art to arrive at the claimed invention utilizing the claimed “spring” for “pressing the partition member so as to discharge a liquid fuel out of the outlet port, whereby the liquid fuel is supplied to the fuel cell”, as specifically recited in independent claim 1, and as also recited in independent claims 14, 17, and 19.

In view of the present response applicants respectfully submit each of previously rejected claims 1, 2, 8, 14, and 18-22 is allowable.

Applicants also note that in the present application withdrawn claims 3-5, 13, and 17 are still pending in this application. Those claims have also been similarly amended as in independent claim 1 noted above, and thus are also believed to be allowable for the same reasons as noted above. Thus, applicants respectfully submit independent claim 1 is generic to each of those claims, and thus those claims must now be reinstated.

Applicants respectfully submit that by the present response each of the currently pending claims is allowable, and that thereby the present application is in condition for allowance.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

Customer Number

**22850**

Tel: (703) 413-3000  
Fax: (703) 413-2220  
(OSMMN 06/04)



Eckhard H. Kuesters  
Attorney of Record  
Registration No. 28,870

Surinder Sachar  
Registration No. 34,423

I:\ATTY\SNS\24's\243093\243093US-AM1.DOC